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A Crested Fern Used in Landscape Planting

F. G. FLOYD

Several years ago a dwarf crested fern was submitted to me for identification. The material was quite meager and the specimens were not well made and, on account of having been collected late in the season, the sori and indusia were not particularly well preserved. On account of the poor material I was unable to satisfactorily establish the identity of the species at the time, but it seemed to be a form of *Asplenium Filix-femina* (L.) Bernh. The plant was collected at West Rock Park, New Haven, Conn., and was reported as abundant.

Nearly all of our native ferns are known to produce crested forms occasionally, but with the exception of certain species that are provided with stoloniferous running rootstocks, these crested forms are found as isolated single plants and not in colonies nor in any abundance over considerable areas. In 1898 I discovered *Dicksonia punctilobula* (Michx.) Gray¹ with forked and crested fronds in the Blue Hills, Milton, Mass., and in 1904 the late Mr. George E. Davenport and myself visited the station at Sudbury, Mass., and collected a crested form of *Aspidium Thelypteris* (L.) Sw.² These two species are of the stoloniferous type. At each of these stations the fern had spread by means of the creeping rootstock until it occupied an area of at least one hundred square feet almost to the exclusion of the normal form. In rambling over New England in search of flowers and ferns I have found many crested or otherwise abnormally divided forms of ferns, but in all my experience, extending over a period of more than twenty years, except at the two above-mentioned stations at Milton and Sudbury, I have never found at

¹ Forma *cristata* (Maxon) Clute. Fern Bull. 7: 63; Rhodora. 2: 220.

² Forma *Pufferae* (A. A. Eaton) Robinson. Fern Bull. 10: 78.

any one station more than a single solitary crested plant. *Asplenium Filix-femina* has no creeping root-stock, being furnished with an upright or decumbent rhizome. From my experience with these plants, therefore, it was natural to expect that if a crested form of *Asplenium Filix-femina* was found, there would be one plant only. Consequently, the reported abundance of a crested fern from West Rock, supposedly this species, excited my curiosity, and when an opportunity presented itself I visited the Park for the purpose of investigating.

I entered at the southwest corner crossing West River and proceeded along a well-kept roadway bordered by a low second growth for the most part of native trees and shrubs. The margin of the roadway had evidently been cleared of all growth and replanted with shrubs, some of which were not native species. Proceeding a short distance, I found in this replanted strip a few plants of the crested form I was looking for and, after satisfying myself that the plant was in reality *Asplenium Filix-femina*, I proceeded to make a careful search to determine its abundance. I found plants everywhere along this roadway but always singly, sometimes a foot or two apart and again ten feet or more away from each other. They were always in the replanted strip and never more than ten feet from the paved gutter of the graded roadbed. When I penetrated further from the road into the uncleared second growth I found plenty of plants of the usual tall, perfectly normal *Asplenium Filix-femina*, but none of the dwarf form. Walking slowly along the roadway for over half a mile I counted the plants observed until the figure reached more than two hundred. I continued for about half a mile further and estimated I saw some five hundred plants of the dwarf crested form in the total distance covered and there were many others

beyond the point where I turned and retraced my steps. There was considerable variation in the stature, shape of blade, and cutting of frond, ranging from about four to eighteen inches in length, from lanceolate to ovate-lanceolate and from simple bifurcate to compound crested.

Here was something new in my experience; *A. Filix-femina*, a non-stoloniferous fern, with crested plants in abundance, and I was puzzled to account for it. I had established four facts; the identity of the fern as a form of *Asplenium Filix-femina*; its abundance as considerable; that it was found only in the replanted strip; and the presence of several recognizably different things all abnormal.

In seeking an answer to this puzzle it is evident that the phenomenon might be accounted for as the result of natural or artificial introduction. The late Mr. Charles T. Druery, exponent of the cult of English fern hybridists, has demonstrated that freak ferns reproduce themselves from spores in cultivation. It might be possible to account for the abundance of the form at West Rock Park through natural means, although not in accord with my observations on other wild species. If, however, this form was reproducing itself naturally, it was not apparent why it should be found exclusively in the replanted area and not in the natural, wild, uncleared second growth. Because of this incongruity of position and also on account of the extent and the regular interval maintained between the plants, I was inclined to adopt the hypothesis of artificial introduction. I was deterred from accepting absolutely this theory because of the factor of precedent involved. I had never known an instance of such an insignificant plant as this dwarf crested form of *Asplenium* being used extensively in landscape planting. After consideration, the weight of the evidence, to my mind,

seemed to indicate artificial introduction rather than natural reproduction from spores and there the matter was allowed to rest for a time.

I have recently received the following letter from the President of the Department of the Public Parks of New Haven, which confirms my suspicion of intentional introduction:

New Haven, Connecticut,
February 13, 1918.

DEAR MR. FLOYD:

In reply to your inquiry I beg to say that Mr. Amrhyn, Superintendent of Parks for a number of years, tells me that he set out a dwarf fern both at East and West Rock Parks for several years in succession in quantity. It must be this to which you refer, although the locality does not exactly correspond to your description. If you wish further information perhaps I could elicit it by sending your letter to the University Professor of Botany, which I will do if you say so. But clearly these dwarf ferns were planted.

Yours truly,

T. S. WOOLSEY.

This evidence seems to settle beyond a doubt that the form in question was actually artificially introduced and was designed to form part of the Park planting scheme.

This crested form has been detected by others at West Rock Park and at East Rock Park. In the Gray Herbarium there is a sheet bearing this label, "*Athyrium Filix-femina*, var. *corymbiferum*, forma *strictum* Druery [det. B. L. R.]. East Rock and Mt. Carmel, near New Haven, Conn. Coll. Miss Mary G. Miner. Comm. Sept. 12, 1906." The specimens match many of the plants I saw at West Rock Park. On this sheet a note has been added by Prof. F. K. Butters, "*A form of true European A. Filix-femina*." In Prof. Butters's paper on the American lady ferns³ it is shown that the true European *Filix-femina* is not found wild in New

³ *Rhodora*. 19: 169.

England. He says "that in the eastern United States and Canada there are two distinct species of lady ferns, neither of which is conspecific with *A. Filix-femina* (L.) Roth, of Europe."¹ If, therefore, *A. Filix-femina* is not a native New England species, and if these crested plants found growing so abundantly at West Rock Park are true European *A. Filix-femina*, it follows that they were planted there.

This then seems to be the answer to the riddle: that, strange as it may seem, this dwarf crested form of lady fern, found well established in such abundance at West Rock Park, has not originated there naturally from spores but has been introduced by the city authorities as a definite part of the planting scheme, and shows every indication at present of maintaining itself indefinitely.

WEST ROXBURY, MASS.

Notes on American Ferns—XII¹

WILLIAM R. MAXON

THE SYSTEMATIC POSITION OF *PELLAEA DENSA*.—Under the name *Onychium densum* and on the basis of very scant material from the Rogue River region of southwestern Oregon, Brackenridge described, in 1854, the peculiar but now well known fern usually called *Pellaea densa*. It has been placed under *Cryptogramma* by Diels, but in every essential character this latest reference is unsatisfactory. Actually the plant is of very close relationship to *Cheilanthes californica*, despite D. C. Eaton's comment concerning the latter species that "there is no other North American fern which it resembles even slightly."² At first sight the

¹ 1 c. p. 179.

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² Ferns N. Amer. 1 : 46. 1878.